# GUCA & GCCA

Gas Fired Warm Air Furnace

## User's Information Manual

**WARNING**

**If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

**– Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**

**– WHAT TO DO IF YOU SMELL GAS:**

- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

**– Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

You have purchased a high-efficiency, gas-fired, warm-air residential furnace. It is designed to heat your home efficiently and safely. It is also designed to interface with your cooling equipment and to assist in circulating conditioned air.

Your furnace functions are regulated by an integrated control module which responds to your home thermostat. This module controls all aspects of operation, and is designed to assure efficiency, reliability, comfort, and safety.

The GUCA/GCCA furnace has been designed with flexibility in mind. It can be installed in an upright or horizontal position. It can use either indoor or outdoor air for combustion purposes. Use of indoor air, referred to as non-direct vent (single pipe), requires only a flue pipe; combustion air is drawn from indoors. Use of outdoor air, referred to as direct vent (dual pipe), requires both a flue pipe and a combustion air intake pipe.

Your furnace is built to provide many years of safe and dependable service, providing it is properly installed and maintained. Take time to familiarize yourself with the information concerning furnace installation, features, operation, and maintenance contained within this manual.

Heating & Air Conditioning

Built Better Than It Has To Be

August 2000 Rev. 1

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THE INSTALLATION AND SERVICING OF THIS EQUIPMENT MUST BE PERFORMED BY QUALIFIED, EXPERIENCED TECHNICIANS ONLY.

*Due to policy of continual product improvement, the right is reserved to change specifications and design without notic*e

**WARNING**

Should overheating occur, or the gas supply fail to shut off, shut off the manual gas valve to the furnace before shutting off the electrical supply.

**WARNING**

To avoid death, personal injury or property damage, do not use this furnace if any part of the furnace has been under water. Immediately call a qualified service technician to inspect the furnace and to replace any part of the control system and any gas control having been under water.

### *Important Note To The Owner*

It is important that you fill out the owner's registration card and mail it today. This will assist Amana in contacting you should any service or warranty information change in the future. When filling in the registration card, be sure to include the Model, Manufacturing and Serial Numbers, plus the installation date. If the registration card cannot be located, please call 1-877-254-4729 to register the furnace.

Your warranty certificate is also supplied with the unit. Read the warranty carefully and note what is covered. Keep the warranty certificate in a safe place, so you can find it, if necessary.

*Before using this manual, check the serial plate for proper model identification.*

**Installer** - Affix this manual, the Installation Guide, and Specifications Sheet adjacent to the appliance.

**Owner** - Keep all product literature in a safe place for future reference.

**RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.**

## ATTENTION INSTALLING PERSONNEL

As a professional installer you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual. Pay special attention to all safety warnings. Often during installation or repair it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

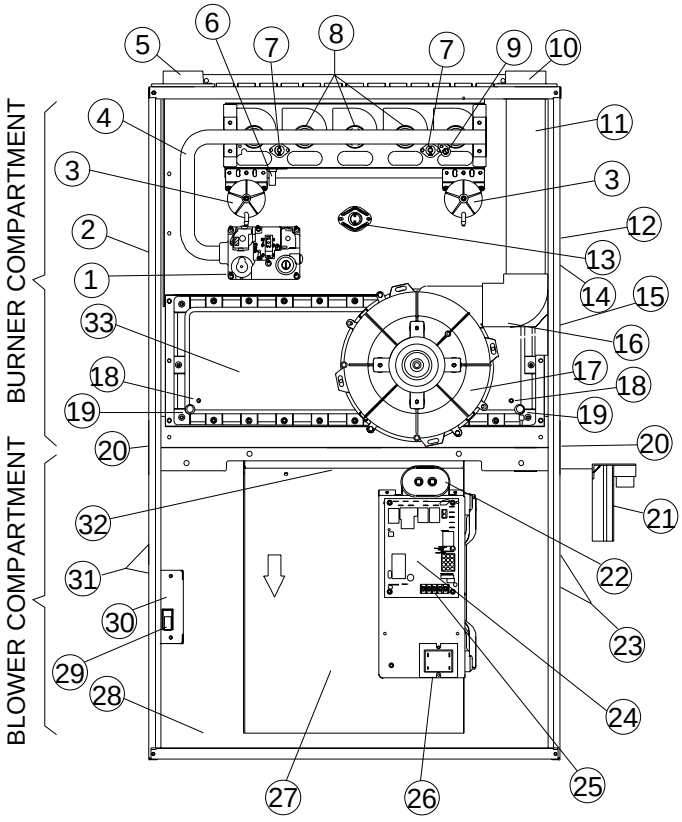
Remember, it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.

Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices...follow them.

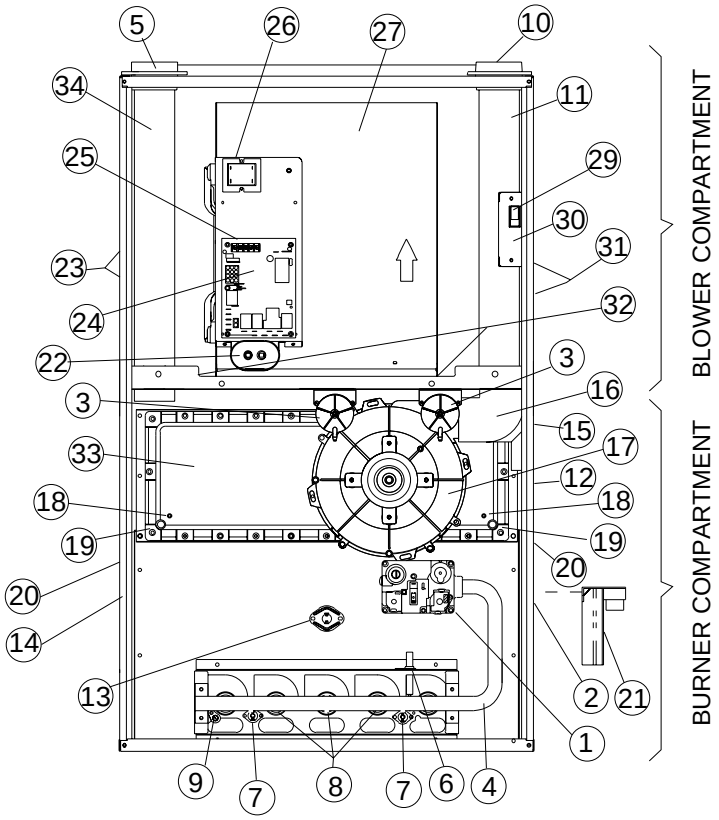
The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

*Remember to leave this manual with the homeowner.*

# Component Identification




Upflow/Horizontal (GUCA Models)




Counterflow/Horizontal (GCCA Models)

1 Gas Valve
2 Gas Line Entrance (Alternate)
3 Pressure Switch
4 Gas Manifold
5 Combustion Air Intake Connection
6 Hot Surface Igniter
7 Rollout Limit
8 Burners
9 Flame Sensor
10 Flue Pipe Connection
11 Flue Pipe
12 Combustion Air Intake (Alternate)
13 Primary Limit
14 Gas Line Entrance
15 Flue Pipe Connection (Alternate)
16 Rubber Elbow
17 Induced Draft Blower
18 Coil Front Cover Pressure Tap
19 Coil Front Cover Drain Tap
20 Drain Line Penetrations
21 Drain Trap
22 Capacitor
23 Electrical Connection Inlets (Alternate)
24 Integrated Control Module (with fuse and diagnostic LED)
25 24 Volt Thermostat Connections
26 Transformer (40 VA)
27 Circulator Blower
28 Bottom Return Filter Retainer
29 Blower Door Interlock Switch
30 Junction Box
31 Electrical Connection Inlets
32 Auxiliary Limits
33 Coil Front Cover
34 Combustion Air Inlet Pipe

# General Information

This furnace is built to provide many years of safe and dependable service, providing it is properly installed and maintained. However, abuse and/or improper use can shorten the life of the furnace and create hazards for you, the homeowner.

**⚠ WARNING**

This product contains or produces a chemical or chemicals which may cause serious illness or death and which are known to the State of California to cause cancer, birth defects or other reproductive harm.

**⚠ WARNING**

To avoid possible equipment damage, personal injury, fire or death, the following instructions must be observed regarding unit location, air requirements and operating procedures.

## Unit Location

1. The furnace area and the vicinity of any other gas appliances must be kept clear and free of combustible materials, gasoline, and other flammable vapors and liquids. Also, do not store or use flammable items such as paint, varnish, or lacquer in the area.
2. Do not store or use chlorine or fluorine products (bleaches, cements, strippers, aerosols) near the unit. They can corrode the heat exchanger.
3. Do not use the furnace closet as storage for brooms, mops, brushes and oily rags or cloths. The area must be kept clear, clean and free of lint. Furnace must be kept free and clear of exposed or loose insulation materials in the area of installation. Examine the furnace area when the furnace or additional insulation is added since some insulation materials may be combustible.
4. Make sure the furnace is always connected to an approved vent, in good condition, to carry combustion products outdoors.
5. Familiarize yourself with the controls that shut off the gas and electrical power to the furnace. If the furnace is to be shut down at the end of the heating season, turn off both the gas and electrical power. For safety, always turn the gas and electrical power off before performing service or maintenance on the furnace.
6. Establish a regular maintenance schedule to insure efficient and safe operation of the furnace. The furnace should be checked at the beginning of each heating and cooling season by a qualified service technician.

**⚠ WARNING**

To avoid personal injury or fire, minimum clearances to combustible surfaces must be followed.

7. Make certain the required clearances for the furnace are always maintained. These clearances are listed on the furnace clearance label. If any question develops, contact the installer of the furnace, or another qualified servicer.

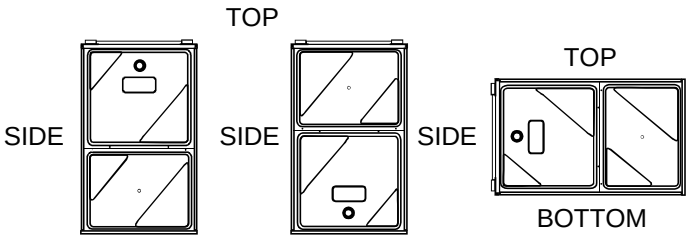
## Unit Installation

Examine the furnace installation to determine the following:

1. The flue vent pipe is physically sound, sealed, and well supported. The vent slopes upward to vent terminal so condensate drains back toward the furnace. The vent shows no evidence of leaking or separation at joints or fittings.
2. The return air duct connection is physically sound, sealed to the furnace casing, and terminates outside the space containing the furnace.
3. The physical support of the furnace is sound without sagging, cracks, or gaps around the base so as to provide a seal between the support and the base.
4. There are no obvious signs of deterioration of the furnace.
5. Check for proper burner flame performance. Flame should extend directly outward from burners without, curling, floating, or lifting off.

## Clearances and Accessibility

Installations must adhere to the clearances to combustible materials for which this furnace has been design certified. The minimum clearance information for this furnace is provided on the unit's clearance label. These clearances must be permanently maintained. In addition to the required clearances to combustible materials, a 36-inch minimum for clearance servicing must be available in front of the unit. Unit positioning is referenced as follows:




**Upflow** **Counterflow** **Horizontal**

## Air Requirements

**WARNING**

To avoid death, personal injury or property damage, enough fresh air for proper combustion and ventilation of flue gases must be provided to this furnace. Most homes require outside air to be supplied into the furnace area.

Improved construction and additional insulation in homes have reduced the heat loss and made these homes much tighter around doors and windows so that air infiltration is minimal. This creates a problem to supply ventilation and/or combustion air for gas fired or other fuel burning appliances. Any use of appliances that pull air out of the house (clothes dryers, exhaust fans, fireplaces, water heaters, non-direct vent furnaces, etc.) increases this problem and appliances could be starving for air.

If fuel-burning appliances are starved for air, the flue gases which these appliances produce as they operate may not vent outdoors properly, but remain in the home instead. These flue gases may include carbon monoxide.

**WARNING**

Death or personal injury from asphyxiation can result from exposure to carbon monoxide.

Carbon monoxide or "CO" is a colorless and odorless gas produced when fuel is not burned completely or when the flame does not receive sufficient oxygen.

**Be aware of these air starvation signals which indicate conditions that may result in carbon monoxide or that carbon monoxide may be present:**

1. Headaches-Nausea-Dizziness, Flu-Like Symptoms.
2. Excessive humidity-heavily frosted windows or a moist "clammy" feeling in the home.
3. Smoke from a fireplace will not draw up the chimney.
4. Flue gases that will not draw up the appliance vent pipe.

## Combustion Air (Non-Direct Vent/Single Pipe)

**WARNING**

It is vitally important that the furnace have proper venting. To prevent possible death or personal injury due to asphyxiation, this furnace must never be common vented with another gas fired appliance. Any alteration to any venting system must be in accordance with local and national codes, and the manufacturer's instructions.

In non-direct vent installations (single pipe), the air for combustion and ventilation can typically be obtained from the surrounding unconfined space or louvered closet door. Observe the following precautions concerning air availability:

- When a furnace is installed in a closet and the closet door is louvered, DO NOT OBSTRUCT LOUVERS. Louvers must be open and clear to provide combustion air to the furnace.
- When a furnace is installed in a confined space within a home and the air for combustion and ventilation enters the space through ducts from the outside, be sure to routinely check the entering and outlet, grilled openings to verify that they are always clear and clean.
- Do not partition off a small area around the furnace utilizing a non-louvered door. This could obstruct the combustion air from reaching the furnace.
- Do not allow the furnace's air intake (top or side) to become blocked.
- The combustion and ventilation air must never come from a corrosive atmosphere.

## Combustion Air (Direct Vent/Dual Pipes)

**WARNING**

It is vitally important that the furnace have proper venting. To prevent possible death or personal injury due to asphyxiation, this furnace must never be common vented with another gas fired appliance. Any alteration to any venting system must be in accordance with local and national codes, and the manufacturer's instructions.

In direct vent installations (dual pipes), the air for combustion and ventilation is obtained from outdoors through an air intake pipe. Observe the following precautions concerning air availability:

- To ensure proper furnace operation, both the air intake pipe and the flue pipe must never become obstructed.
- The combustion and ventilation air must never come from a corrosive atmosphere.

## Flue Pipe and Condensate Drainage

**WARNING**

To prevent possible death or personal injury due to asphyxiation, Amana Condensing Gas Fired Warm Air Furnaces must be Category IV vented.

The venting of this furnace (Category IV venting) must be both gas and water tight. For proper performance, the size, length, number of elbows, and termination must be in accordance with the specifications outlined in the furnace installation guide. The flue system must slope towards the furnace for proper condensate drainage. The flue pipe and its termination must be kept clear of blockage. For further information on Category IV venting, refer to the installation instructions accompanying this product. If not included, ask your installing dealer or distributor for this information.

Provisions must be made to drain condensate from the furnace and protect the condensate drain trap and drain lines from freezing conditions. The drain trap and drain lines must be kept clear of blockage.

### Indoor Humidity

Relative humidity is the amount of water vapor in the air relative to the amount the air can hold at the same temperature. Example: At 40% relative humidity, the air could hold 2 1/2 times as much moisture (2.5 x 40 = 100%) before becoming saturated.

The colder the air; the less moisture it can hold. As air is warmed, its ability to hold moisture is increased.

**Example:** A winter day, outdoor temperature 10°F, and relative humidity of 70%. If that air enters a home and is warmed to 72°F the relative humidity will drop to 6% (very dry) if no more moisture is added.

Relative humidity is important to your health and home as proper humidification helps reduce respiratory difficulties and helps improve the indoor air quality.

A good relative humidity is one just high enough to barely start condensation along the lower edges or lower corners of the windows. More than that can be damaging.

Frequent fogging or excessive condensation on inside windows indicates the indoor humidity level is too high for outdoor weather conditions. Damage to the building may result if the condition persists. (Condensation on inside of storm windows indicates loose inside windows. Adding weather-stripping to tighten inside windows usually corrects this problem.)

The following table shows the recommended maximum indoor humidity in relationship to the outdoor temperatures.

| Temperature (° F.) | Humidity |
|---|---|
| +20° | 35% |
| +10° | 30% |
| 0° | 25% |
| -10° | 20% |
| -20° | 15% |

**Table 1**

# General Information

## For Propane (LP) Gas Installations Only

For furnaces operating on propane gas, please review the following warnings before use.

**WARNING**

To avoid death, personal injury or property damage due to explosion or fire, install a gas detecting warning device. Since the odorant in propane gas can be reduced by iron oxide (rust), a gas detecting warning device is the only reliable method to detect propane gas leaks.

**WARNING**

If the gas furnace is installed in a basement, an excavated area or a confined space, it is strongly recommended to contact a propane supplier to install a gas detecting warning device in case of a gas leak.

- Since propane gas is heavier than air, any leaking gas can settle in any low areas or confined spaces.
- Propane gas odorant may fade, making the gas undetectable except with a warning device.

**WARNING**

An undetected gas leak will create a danger of explosion or fire. If the presence of gas is suspected, follow the instructions on the cover of this manual. Failure to do so could result in SERIOUS PERSONAL INJURY OR DEATH.

# Operating Your Furnace

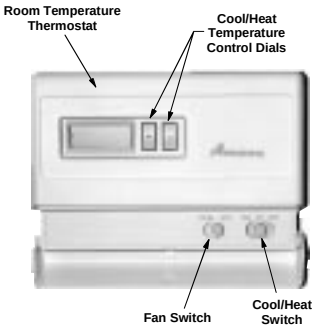
## Furnace Operation

In the heating mode, gas is burned and the products of combustion are drawn through a heat exchanger by an induced draft blower. The flue gases are then exhausted from your home through a flue pipe system. The furnace's circulator blower passes indoor air over the heat exchanger and then through the conditioned space. The furnace's heat exchanger is actually two exchangers, a primary and a secondary, connected in series. The primary heat exchanger is a tubular stainless steel design built for exceptional durability and efficient heat transfer. The secondary heat exchanger, sometimes referred to as a recuperator coil, is a stainless steel tube and aluminum fin arrangement designed to remove the last remaining heat from the flue gases. The amount of heat withdrawn from the flue gases is so great that the gases are actually cooled to the point of condensing. This furnace therefore produces condensate (water) which must be directed to a drain. Furnaces of this type are referred to as "condensing furnaces".

## Thermostat Functions

There are many types and styles of thermostats but the operation is usually similar. BE SURE TO BECOME FAMILIAR WITH YOUR THERMOSTAT. The simplest type of thermostat only starts and stops the furnace to maintain the desired room temperature. The most widely used types will control both heating and cooling functions and will have a Fan Switch with Auto and ON settings. On Auto, the circulating air blower will cycle on/off with the furnace but if switched to ON it will run continuously regardless of whether or not heating or cooling is being provided.

In addition, there are thermostats which automatically switch from heating to cooling mode and those with night set back capability. The night set back, or multiple set back, type allows for a different temperature at night or during the day when no one is at home. Programmable thermostats will allow for more control and tailoring of the heating and cooling functions. The level of this control will depend on the type of thermostat applied.




**Typical Thermostat**

| System Switch | Fan Switch | Action |
|---|---|---|
| OFF | AUTO | None |
| COOL | AUTO | System only cools, fan cycles off and on. |
| COOL | ON | System only cools, fan runs all the time. |
| HEAT | AUTO | System only heats, fan cycles off and on. |
| HEAT | ON | System only heats, fan runs all the time. |
| OFF | ON | No heating or cooling, fan runs all the time. |

**⚠ WARNING**

Electrical components are contained in both compartments. To avoid electrical shock, injury or death, do not remove any internal compartment covers. Contact a qualified servicer at once if an abnormal condition is noticed.

**Notice:**

Do not use this furnace if any part has been under water. Immediately call a qualified servicer to inspect the furnace and to replace any part of the control system and any gas control which has been under water.

Keep both doors in place except for inspection and maintenance. An interlock switch prevents furnace operation if the blower door is not in place.

### Integrated Control Module

This furnace is equipped with an integrated control module which regulates all furnace operations. The control responds to input from the thermostat, initiates and controls normal furnace operation, and monitors and responds to all safety circuits. The integrated control module is outfitted with a 3-amp fuse for electrical protection.

### Gas Valve

The gas valve regulates gas flow to the burners in response to input from the integrated control module.

### Igniter

The furnace has an electronic ignition device which lights the burners automatically, never try to light the burners by hand.

### Blowers

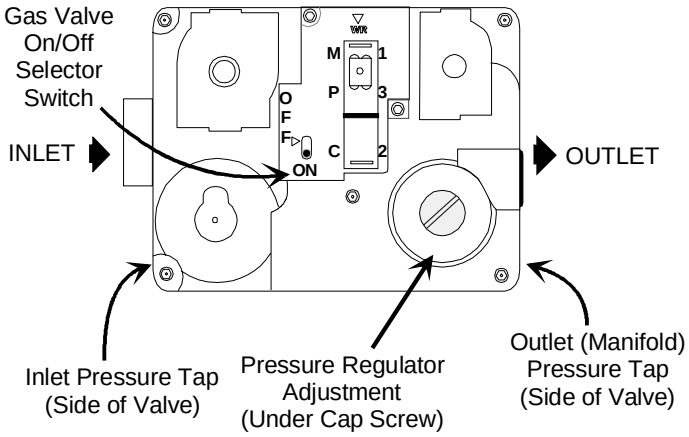
An induced draft blower is utilized to draw flue products through the heat exchanger and exhaust them outdoors. The circulator or main blower passes indoor air over the heat exchanger and throughout the conditioned space. Both blowers are permanently lubricated, no further oiling is required.

## Starting Your Furnace

To put your furnace into operation, follow the steps listed below.

1. Close the external manual gas shut-off valve.
2. Turn off the electrical power to the furnace.
3. Set the room thermostat to the lowest possible setting.
4. Remove the burner compartment door.
5. This furnace is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
6. Move the furnace's gas valve ON/OFF switch to the OFF position.

7. Wait five minutes to clear out any gas. Then smell for gas, including near the floor as some types of gas are heavier than air.
8. If you smell gas following the five minute waiting period in step 7, immediately follow the instructions on the cover of this manual. If you do not smell gas after five minutes, move the furnace's gas valve ON/OFF switch to the ON position.
9. Replace the burner compartment door.
10. Open the external manual gas shut-off valve.
11. Turn on the electrical power to the furnace.
12. Adjust the thermostat to a setting above room temperature.
13. After the burners are lit, set the thermostat to desired temperature.




**White-Rodgers**
**Model 36E22 or 36E23**
**(View Is Upside Down For Clarity)**

## Shutting Down Your Furnace

To shut down your furnace into operation, follow the steps listed below.

1. Set the thermostat to the lowest setting.
2. Integrated control closes gas valve extinguishing flame.
3. Induced draft blower is de-energized following a 15 second delay. The circulator blower is de-energized following a 60, 90, 120, or 180 second delay period.
4. Remove the burner compartment door.
5. Move the furnace's gas valve ON/OFF switch to the OFF position.
6. Close the external manual gas shut-off valve.
7. Replace the burner compartment door.

# Safety Circuits

A number of safety circuits are employed to ensure safe and proper furnace operation. These circuits serve to control any potential safety hazards and, as inputs in the monitoring and diagnosis of abnormal function. These circuits are continuously monitored by the integrated control module.

## Integrated Control Module

The integrated control module is an electronic device which regulates all furnace operations. Responding to the thermostat, the module initiates and controls normal furnace operation, and monitors and addresses all safety circuits. If a potential safety concern is detected, the module will take the necessary precautions and provide diagnostic information through an LED displayed on the module. See troubleshooting chart on page 14.

## Primary Limit

The primary limit control is located on the partition panel and monitors heat exchanger compartment temperatures. It is a normally closed (electrically), automatic reset, temperature activated sensor. This limit guards against overheating as a result of insufficient conditioned air passing over the heat exchanger.

## Auxiliary Limit

The auxiliary limit control is located on or near the blower deck and monitors heat exchanger compartment temperatures. It is a normally closed (electrically), manual reset, temperature activated sensor. This limit guards against overheating as a result of insufficient conditioned air passing over the heat exchanger.

## Rollout Limit

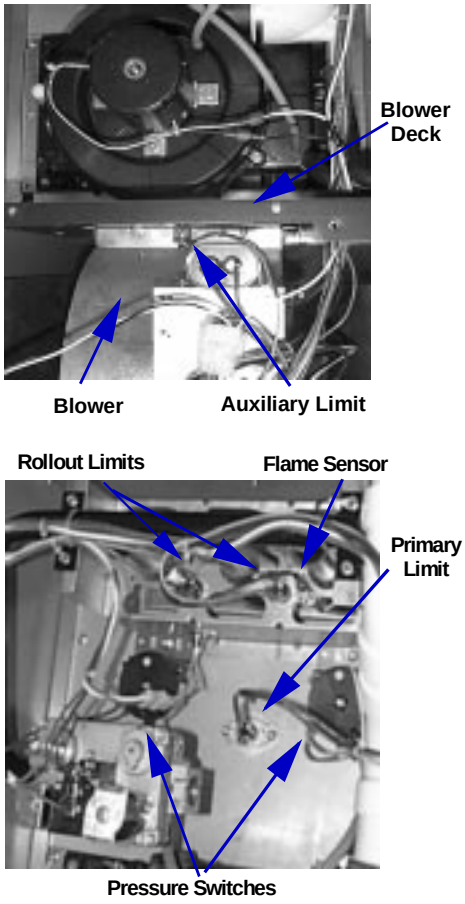
The rollout limit is a normally-closed (electrically), manual-reset, temperature-activated sensor. It is mounted on the burner/manifold assembly and monitors the burner flame. If there is an improper draw of burner flames into the heat exchanger, the rollout limit will detect it and shutdown gas flowing to the burners.

## Pressure Switches

The pressure switches are normally-open (closed during operation), single-pole single-throw, negative air pressure activated switches. They monitor the airflow (combustion air and flue products) through the heat exchanger via pressure taps located on the induced draft blower and the coil front cover. These switches guard against insufficient airflow (combustion air and flue products) through the heat exchanger and blocked condensate drain conditions.

## Flame Sensor

The flame sensor is a probe mounted to the burner/manifold assembly which uses the principle of flame rectification to determine the presence or absence of flame.




**Safety Circuits**
**Upflow Shown (Counterflow Similar)**

## Resetting From Lockout

Furnace lockout is characterized by a non-functioning furnace (circulator blower may be running continuously) providing a one flash diagnostic LED code. Lockout results when a furnace is unable to achieve ignition after three attempts, or when it has lost flame five times during a single call for heat. If the furnace is in “lockout”, it may be reset by any of the following methods:

1. One hour automatic reset. Control will automatically reset itself and attempt to resume normal operations following a one hour lockout period.
2. Power interruption. Interrupt 115 volt power to the furnace for between 0 and 20 seconds.
3. Thermostat cycle. Interrupt thermostat signal to the furnace for between 0 and 20 seconds.

If the condition which originally caused the lockout still exists, the control will return to lockout. Refer to the “Troubleshooting” section for aid in determining the cause. If your furnace frequently locks out, a problem exists which must be corrected. Contact a qualified servicer.

# Routine Maintenance

If you perform maintenance on the furnace yourself, remember that certain mechanical and electrical knowledge, skills and tools are required to perform maintenance on the furnace. Personal injury or death may result If you are not properly trained. You should call your installing dealer or place of purchase if you are uncertain about your ability to perform maintenance.

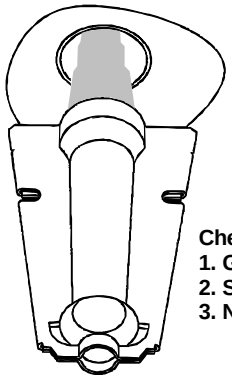
**⚠ WARNING**

To avoid death or personal injury due to electrical shock, disconnect the electrical power before performing any maintenance.

## Annual Inspection

The furnace should be inspected by a qualified installer, or service agency at least once per year. This check should be performed at the beginning of the heating season. This will insure that all furnace components are in proper working order and that the heating system functions appropriately. Particular attention should be paid to the following items. Repair as necessary.

- Flue pipe system. Check for blockage and/or leakage. Check the outside termination and the connections at and internal to the furnace.
- Combustion air intake pipe system (where applicable). Check for blockage and/or leakage. Check the outside termination and the connection at the furnace.
- Heat exchanger. Check for corrosion and/or buildup within the heat exchanger passageways.
- Burners. Check for proper ignition, burner flame, and flame sense. Flames should extend directly outward from burners without curling, floating or lifting off.
- Drainage system. Check for blockage and/or leakage. Check hose connections at furnace.
- Wiring. Check electrical connections for tightness and/or corrosion. Check wires for damage.
- Filters. Check that filters are clean and in the proper placement in the furnace or duct system.



**Check the burner flames for:**
**1. Good adjustment**
**2. Stable, soft and blue**
**3. Not curling, floating, or lifting off.**

**Burner Flame**

## Filters

**⚠ WARNING**

To avoid death, personal injury or property damage, disconnect electrical power before removing filters never operate furnace without a filter installed. Dust and lint will build up on internal parts resulting in loss of efficiency, equipment damage and possible fire.

A return air filter is not supplied with this furnace; however, a means of filtering all of the return air must be provided. Your installer will supply filters at the time of installation. Become familiar with filter location and procedures for removing, cleaning and replacing them.

If you need assistance, contact the installer of your furnace or another qualified servicer.

Filters must be inspected, cleaned or changed every two months or as required. As a homeowner, it your personal responsibility to keep air filters clean. Remember that dirty filters are the most common cause of inadequate heating or cooling performance.

### Filter Removal

Filters are located either at the unit or in a central return grille. Horizontal installations will always utilize a central return grille location. If a filter is located at the unit, use the following information to aid in filter removal.

***Upflow Filters (Upright)***

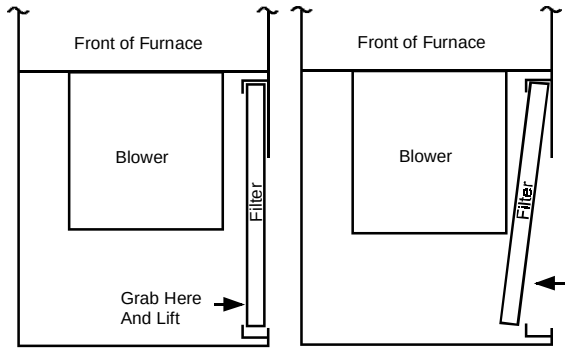
To remove a filter from the bottom of the blower compartment in an upright upflow installation:

1. Set thermostat to the OFF position or turn OFF electrical power to furnace.
2. Remove blower compartment door.
3. Push back and up on the wire filter retainer to release it from under the front lip of the furnace basepan. Do not remove. To access the filter, tilt the wire filter retainer upwards.
4. Slide filter forward and out. Vacuum blower compartment.
5. Replace filter and secure retainer opposite of removal.

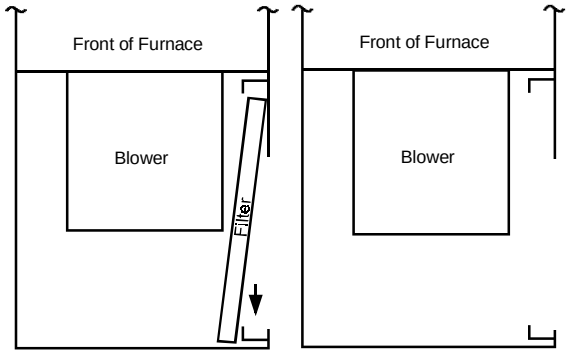
6. Replace blower compartment door and turn ON thermostat or electrical power to furnace.

To remove internal filter(s) from the retaining rails on the side(s) of the blower compartment in an upright installation:

1. Set the thermostat to the OFF position or turn OFF electrical power to furnace.
2. Remove the blower compartment door.
3. Grasping the lower portion of the filter, disengage the filter from the lower railing by lifting it up and toward the blower. Lower the filter down and pull outward.
4. Replace filter and blower compartment door opposite of removal and turn ON thermostat or electrical power.




a. Lift filter above bottom rail  b. Tilt filter to clear rail.




c. Lower filter below top rail.  d. Slide filter out.

## Filter Removal Procedure

To remove filters from an external filter rack in an upright upflow installation, follow the directions provided with the external filter rack kit.

***Counterflow Filters (Upright)***

To remove filters from the ductwork above an upright counterflow installation:

1. Set thermostat to the OFF position or turn OFF electrical power to furnace.
2. Remove access door in ductwork above furnace.
3. Remove filters.
4. Replace filters opposite of removal. Replace access door in ductwork.
5. Turn ON thermostat or electrical power to furnace.

***Horizontal and Central Return Filters***

To remove filter(s) from the central return grille installation:

1. Set thermostat to the OFF position or turn OFF electrical power to the furnace.
2. Remove filter(s) from the central grille location.
3. Replace filter(s) opposite removal.
4. Turn ON thermostat or electrical power to furnace.

### Filter Cleaning and/or Replacement

Use a vacuum cleaner to clean out the blower compartment and the adjacent area of the return air duct

Disposable filters must be replaced with a filter or filters of the same size as that which is removed. Filters must comply with UL900 or CAN/ULC-S111 Standards.

Permanent filters must be cleaned, washed, and dried as specified by the filter manufacturer. Filters which use a dust adhesive should be sprayed or oiled as recommended by the filter and adhesive manufacturers. If it becomes necessary to replace a permanent filter, it must be replaced with a filter or filters of the same size as that which is removed. Filters must comply with UL900 or CAN/ULC-S111 Standards.

When reinstalling filters, be careful to maintain correct airflow direction.

# Troubleshooting / Before You Request a Service Call

If your furnace is not operating or is performing improperly, take time to perform the following checks before requesting service. A couple of simple checks may allow you to avoid a service call. If the following steps do not resolve the problem, contact a qualified servicer for further troubleshooting and/or repairs. Do not attempt troubleshooting beyond that which is outlined below. Do not attempt repairs yourself. Use the diagram on page 4 for parts reference.

If your furnace will not start, check the following (in sequence):

**NOTE:** If flashing, the integrated control module diagnostic LED flash code must be recorded prior to turning off the power to the furnace or opening the blower compartment door. To determine the flash code, count the number of flashes seen through the blower compartment door sight glass. Refer to the diagnostics chart for a description of the LED flash codes and their possible causes.

- Check thermostat for proper operation. Verify that it is set on HEAT and that temperature (above room temperature) setting is appropriate.
- Check to see that the electrical disconnect at the furnace location is in the ON position. If the switch is in the OFF position, switch it to the ON position to supply electrical power to the furnace.
- Check fuse or circuit breaker in furnace electrical circuit. Replace as necessary.
- Check to see that the manual gas shut-off valve external to the furnace is in the ON position. If the valve is in the OFF position, turn the gas ON following the start up procedures outlined in the “Starting Your Furnace” section.

**NOTE:** If flashing, record the integrated control module diagnostic LED flash code prior to power interruption. Turn off furnace electrical power prior to proceeding.

- Remove burner compartment door and check to see that gas valve ON/OFF switch is in the ON position. (See figure on page 10) If the switch is in the OFF position, turn the gas ON following the start up procedures outlined in the “Starting Your Furnace” section.
- Remove blower compartment door and check to verify whether or not the manual reset auxiliary limit control has tripped. The auxiliary limit control is located on or near the circulator blower. (See figure on page 4) If the auxiliary limit control has tripped, a reset “click” will be heard when the red button on the back of the control is pressed. Replace door. **NOTE:** Do not reset the auxiliary limit control more than once. If the control trips again, follow the furnace shut down procedure outlined in the “Starting Your Furnace” section and contact a qualified servicer.
- Check for blockage at the termination(s) of flue pipe (and the combustion air intake pipe where present). Also for blockage in the drain trap. Clear if possible. (See figure on page 4)
- Check for blockage in the drain lines. If blockage is present, please contact a qualified servicer.

If you experience insufficient airflow, check the following (in sequence):

- Check for dirty filter(s). This in the most common cause of improper furnace operation. Replace or clean filters as necessary.
- Check for blocked return air or supply air grilles throughout you home. Grilles may be blocked by furniture, drapery, clothes, carpeting, etc. Clear any blockage.

# Troubleshooting / Before You Request a Service Call

| Symptoms of Abnormal Operation | Associated LED Code (See Notes 1 & 2) | Probable Cause(s) | Corrective Action |
|---|---|---|---|
| - Furnace fails to operate.<br>and<br>- Integrated control module diagnostic LED provides no signal. | None | - No electrical power to furnace. | - Confirm that the external electrical disconnect switch is in the "ON" position. If "OFF", switch to the "ON" position.<br>- Check for tripped or blown circuit breaker or fuse. Replace if necessary. |
| - Furnace fails to operate.<br>and<br>- Integrated control module diagnostic LED is lit continuously. | <br>Continuous On | - Integrated control module has an internal fault. | - Have servicer inspect furnace and replace faulty integrated control module if necessary. |
| - Furnace is not operating<br>and<br>- Integrated control module diagnostic LED is flashing one flash. | <br>1 Flash<br>(See Note 3) | - No gas supply to furnace.<br>- Condensate drain blocked. | - Confirm that the external manual gas shut-off valve is in the "Open" position. If "Closed", follow the start up procedure outlined in this manual when moving the gas shut-off valve to the "Open" position.<br>- Check drain system for blockage. Clear if possible. |
| - Furnace fails to operate.<br>and<br>- Integrated control module diagnostic LED is flashing two flashes. | <br>2 Flashes | - Possible pressure switch malfunction. | - Have servicer inspect furnace and make necessary corrections. |
| - Induced draft blower runs continuously with no further furnace operation.<br>and<br>- Integrated control module diagnostic LED is flashing three flashes. | <br>3 Flashes | - Blocked flue and/or inlet air pipe.<br>- Blocked drain system. | - Check flue and/or inlet air piping for blockage, especially at the outdoor termination(s).<br>- Check drain system for blockage. Clear if possible |
| - Circulator blower runs continuously with no further furnace operation.<br>and<br>- Integrated control module diagnostic LED is flashing four flashes. | <br>4 Flashes | - Dirty filters or blocked return grilles. | - Check filters. Repace or clean if necessary.<br>- Check for furniture, curtains, etc. blocking return grilles. Correct if necessary. |
| - Circulator blower runs continuously with no further furnace operation.<br>and<br>- Integrated control module diagnostic LED is flashing five flashes. | <br>5 Flashes | - Blocked flue and/or inlet air pipe has caused flame rollout limit switch(es) to be activated. | - Check flue and/or inlet air piping for blockage, especially at the outdoor termination(s).<br>- Reset rollout limit switch(es) by depressing the red button on the back of the switch(es). Only reset rollout limit switch(es) one time. If problem reoccurs, have servicer inspect furnace and make neccessary corrections. |
| - Furnace fails to operate.<br>and<br>- Integrated control module diagnostic LED is flashing six flashes. | <br>6 Flashes | - Polarity of electrical power to furnace or control module has been reversed.<br>- Poor unit ground. | - Have servicer inspect furnace and make necessary corrections. |
| - Normal furnace operation.<br>but<br>- Integrated control module diagnostic LED is flashing seven flashes. | <br>7 Flashes | - Flame sensor is coated/oxidized.<br>- Flame sensor is incorrectly positioned in burner flame | - Have servicer inspect furnace and make necessary corrections. |
| - Furnace is not operating.<br>and<br>- Integrated control module diagnostic LED is flashing eight flashes. | <br>8 Flashes<br>(See Note 4) | - Blocked flue and/or inlet pipe.<br>- Blocked drain system. | - Check flue and/or air inlet piping for blockage, especially at the outdoor termination(s).<br>- Check drain system for blockage. Clear if possible |
| - Circulator blower running continuously with no further operation.<br>and<br>- Integrated control module diagnostic LED is flashing nine flashes. | <br>9 Flashes<br>(See Note 3) | - Dirty fliters or blocked return grilles | - Check filters. Replace or clean if necessary.<br>- Check for furniture, curtains, etc. blocking return grilles. Correct if necessary. |
| - Induced draft and circulator blower run continuously with no further furnace operation.<br>and<br>- Integrated control module diagnostic LED is flashing continuously. | <br>Continuous Flashing | - Malfunction in flame sense circuit. | - Have servicer inspect furnace and make necessary corrections. |

1) LED flash code may be viewed through sight glass in blower compartment door.
2) LED flash code will cease if power to the control module is interrupted through the disconnect or furnace door switch.
3) Integrated control module will automatically attempt to reset from "lock out" (1 Flash) after one hour.
4) Integrated control module will automatically attempt to reset from "lock out" after 20 minutes.

# Safety Labels

**NOTE:** If safety labels are missing or illegible, contact the installing dealer or Amana Customer Service Department for ordering information.

**WARNING:** THIS COMPARTMENT MUST BE CLOSED EXCEPT WHEN SERVICING **AVERTISSEMENT:** CE COMPARTTIMENT DOIT RESTER FERME, SAUF POUR L'ENTRETIEN

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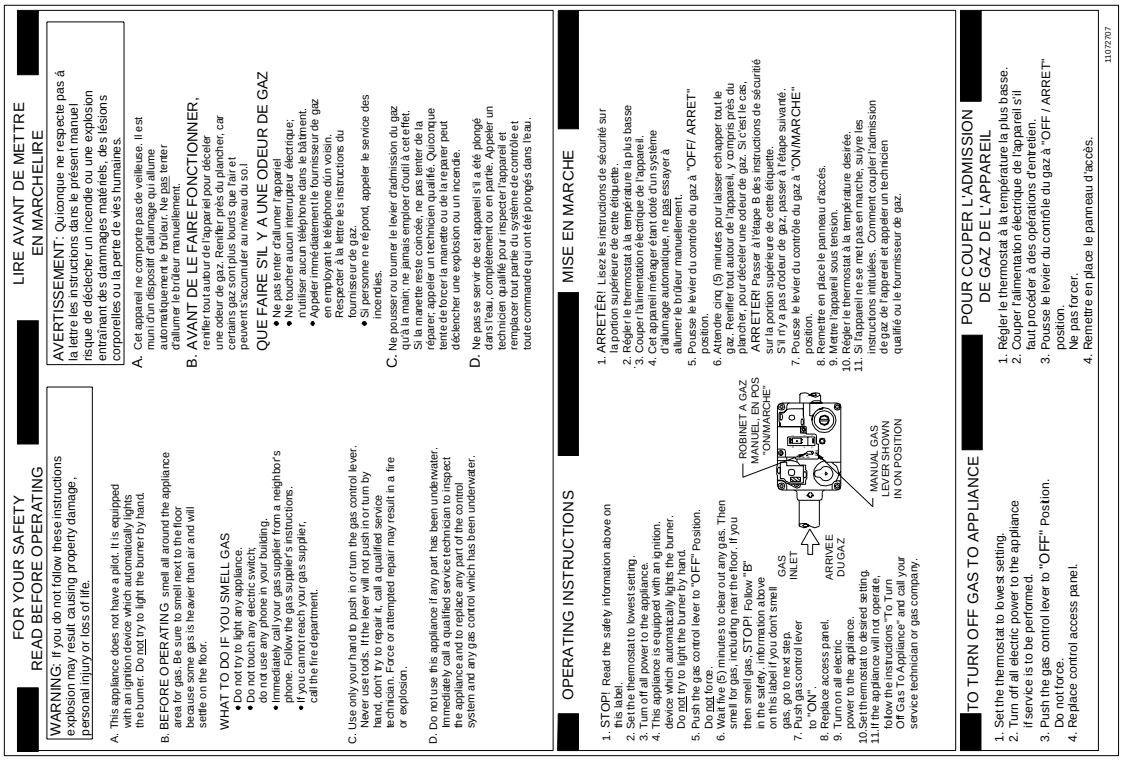
FOR YOUR SAFETY
READ BEFORE OPERATING
WARNING: If you do not follow these instructions explosion may result causing property damage, personal injury or loss of life.
A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
WHAT TO DO IF YOU SMELL GAS
• Do not try to light any appliance.
• Do not touch any electric switch; do not use any phone in your building.
• Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
• If you cannot reach your gas supplier, call the fire department.
C. Use only your hand to push in or turn the gas control lever. Never use tools. If the lever will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
D. Do not use this appliance if any part has been underwater. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been underwater.
LIRE AVANT DE METTRE EN MARCHE LIRE
AVERTISSEMENT: Quiconque ne respecte pas à la lettre les instructions dans le présent manuel risque de déclecher un incendie ou une explosion entraînant des dammages matériels, des lésions corporelles ou la perte de vies humaines.
A. Cet appareil ne comporte pas de veilleuse. Il est muni d'un dispositif d'allumage qui allume automatiquement le brûleur. Ne pas tenter d'allumer le brûleur manuellement.
B. AVANT DE LE FAIRE FONCTIONNER, renifler tout autour de l'appareil pour déceler une odeur de gaz. Renifler prés du plancher, car certains gaz sont plus lourds que l'air et peuvent s'accumuler au niveau du sol.
QUE FAIRE S'IL Y A UNE ODEUR DE GAZ
• Ne pas tenter d'allumer l'appareil
• Ne toucher aucun interrupteur électrique; n'utiliser aucun téléphone dans le bâtiment.
• Appeler immédiatement le fournisseur de gaz en utilisant le téléphone du voisin. Respecter à la lettre les instructions du fournisseur de gaz.
• Si personne ne répond, appeler le service des incendies.
C. Ne pousser ou tourner le levier d'admission du gaz qu'à la main; ne jamais employer d'outil à cet effet. Si la manette reste coincée, ne pas tenter de la réparer, appeler un technicien qualifié. Quiconque tente de forcer la manette ou de la reparer peut déclencher une explosion ou un incendie.
D. Ne pas se servir de cet appareil s'il a été plongé dans l'eau, complètement ou en partie. Appeler un technicien qualifié pour inspecter l'appareil et remplacer tout partie du système de contrôle et toute commande qui ont été plongés dans l'eau.
OPERATING INSTRUCTIONS
1. STOP! Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. Push the gas control lever to "OFF" Position. Do not force.
6. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label if you don't smell gas, go to next step.
7. Push gas control lever to "ON".
8. Replace access panel.
9. Turn on all electric power to the appliance.
10. Set thermostat to desired setting.
11. If the appliance will not operate; follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas company.
GAS INLET
ARRIVEE DU GAZ
ROBINET A GAZ MANUEL, EN POS "ON/MARCHE"
MANUAL GAS LEVER SHOWN IN ON POSITION
MISE EN MARCHE
1. ARRETÉR! Lisez les instructions de sécurité sur la portion supérieure de cette étiquette.
2. Régler le thermostat à la température la plus basse
3. Couper l'alimentation électrique de l'appareil.
4. Cet appareil ménager étant doté d'un système d'allumage automatique, ne pas essayer à allumer le brûleur manuellement.
5. Pousser le levier du contrôle du gaz à "OFF/ ARRET" position.
6. Attendre cinq (5) minutes pour laisser echapper tout le gaz. Renifler tout autour de l'appareil, y compris près du plancher, pour déceler une odeur de gaz. Si c'est le cas, ARRETER! Passer à l'étape B des instructions de sécurité sur la portion supérieure de cette étiquette. S'il n'y a pas d'odeur de gaz, passer à l'étape suivanté.
7. Pousse le levier du contrôle du gaz à "ON/MARCHE" position.
8. Remettre en place le panneau d'accès.
9. Mettre l'appareil sous tension.
10. Régler le thermostat à la température désirée.
11. Si l'appareil ne se met pas en marche, suivre les instructions intitulés. Comment coupler l'admission de gaz de l'appareil et appeler un technicien qualifié ou le fournisseur de gaz.
TO TURN OFF GAS TO APPLIANCE
1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Push the gas control lever to "OFF" Position. Do not force.
4. Replace control access panel.
POUR COUPER L'ADMISSION DE GAZ DE L'APPAREIL
1. Régler le thermostat à la température la plus basse.
2. Couper l'alimentation électrique de l'appareil s'il faut procéder à des opérations d'entretien.
3. Pousse le levier du contrôle du gaz à "OFF / ARRET" position. Ne pas forcer.
4. Remettre en place le panneau d'accès.
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⚠ WARNING: IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTAINANCE CAN CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE, EXPOSURE TO SUSTANCES IN FUEL OR FROM FUEL COMBUSTION WHICH CAN CAUSE DEATH OR SERIOUS ILLNESS, AND WHICH ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER BIRTH DEFECTS, OR OTHER REPRODUCTIVE HARM. REFER TO THE USER'S INFORMATION MANUAL PROVIDED WITH THIS FURNACE. INSTALLATION AND SERVICE MUST BE PERFORMED BY A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

SEE INSIDE SURFACE OF LOUVERED DOOR FOR LIGHTING/OPERATING INSTRUCTIONS.

⚠ AVERTISSEMENT: UNE INSTALLATION, UN REGLAGE, UNE MODIFICATION, UNE ENTRETIEN, OU UNE MAINTAINANCE INCORRECTS PEUVENT ENTRAINER DES DOMMAGES MATERIALS, DES LESIONS CORPORELLES OU LA PERTE DE VIES HUMAINES. CONSULTER LE MANUEL DES USAGER FOURNI AVEC CE GENERATEUR D'AIR CHAUD. L'INSTALLATION ET L'ENTRETIEN DOIVENT ETRE EFFECTUE'S PAR UN INSTALLATEUR QUALIFIE, UN ORGANISME DE MAINTENANCE OU LE FOURNISSEUR DE GAZ.

AVERTISSEMENT

NE PAS ENTREPOSER NI UTILISER DE L'ESSENCE NI D'AUTRES VAPEURS OU LIQUIDES INFLAMMABLES DANS LES VOISINAGES DE CET APPAREIL, NI DE TOUT AUTRE APPAREIL.

LES INDICATIONS POUR L'ECLAIRAGE ET LE SERVICE SE TROUVENT A LA SURFACE INTERIEURE DE LA PORT A JALOUSIES.

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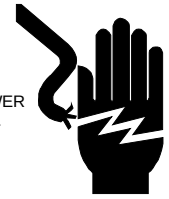
⚠ WARNING

RISK OF ELECTRIC SHOCK OR DEATH. DISCONNECT THE REMOTE ELECTRIC POWER SUPPLY OR SUPPLIES BEFORE SERVICING.

DANGER DE CHOC ÉLECTRIQUE OU DE MORT. DÉBRANCHER TOUTE BOITE Á FUSIBLES AVANT L'ENTRETIEN.



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# For Additional Information

Most questions can be answered by the local Amana dealer. Check with dealer first if needing any further information regarding the operation, maintenance, or service of the furnace.

If you have any matters that are not resolved locally, or for more information on other heating and cooling products or kitchen appliances offered by Amana is needed - please call:

**CONSUMER INFORMATION LINE**
**AMANA TOLL FREE**
**1-877-254-4729 (U.S. only)**
**email us at: hac.consumer.affairs@amana.com**
**fax us at: (931) 438- 4362**
**(Not a technical assistance line for dealers.)**

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**Outside the U.S., call 1-931-433-6101.**
**(Not a technical assistance line for dealers.)**
**Your telephone company will bill you for the call.**

Ask a participating Amana dealer about Amana's extended service plan. It adds to the strong warranty with additional parts and labor coverage.

Amana Asure™
EXTENDED SERVICE PLAN

**To obtain the proper labels, the Model, Manufacturing Number and Serial Number of the unit must be supplied. These numbers are recorded on the nameplate of the furnace. For convenience, record this information here:**

**MODEL NUMBER: _ _ _ _ _ _ _ _ _ _ _ _**
**MANUFACTURING NUMBER: P _ _ _ _ _ _ _F**
**SERIAL NUMBER: _ _ _ _ _ _ _ _ _ _**